something like 2 months and would have avoided the risks of repeated anesthesia, which I have come to weigh not lightly. It may be suggested that the side to side anastomosis could be avoided by separating the gall bladder and anastomosing the sinus opening with the duodenum. This would have been impracticable for 2 reasons:

First, because the peritoneal covering over the fundus of the gall bladder had lost its identity and the structure about the sinus orifice could not have been safely joined to the duodenum. Second, the gall bladder was so involved in adhesions that to have liberated it sufficiently to have brought the sinus orifice into apposition with the duodenum would have been practically impossible, at least it would have added a serious risk to the patient.

RECENT COMPLETE TEARS OF THE PERINEUM.*

By GEORGE B. SOMERS, M. D., San Francisco.

INJURIES of the perineum are of interest to every physician who engages in general practice. They are very common and occur in the hands of even the most skillful obstetricians. When we consider the enormous number of children that are born into the world and the disproportion between the size of the unborn and the size of the canal through which nature forces them to travel, one wonders that injuries are not more common and more severe. It is true that we find many practitioners who maintain that they have confinements by the thousands and never meet with an accident to the perineum, but we cannot help feeling that such happy individuals do not find these accidents because they do not look for them.

So wonderful is nature's reparative process, that even in very severe injuries, the parts are often restored to fair condition, without any assistance on the part of the physician. But there is one form of injury, which is always too much for nature alone to cope with and requires skilled interference in order to effect a cure. I refer to complete tear of the perineum. The complete tear of the sphincter of the anus is followed by such a retraction and separation of the injured parts that spontaneous cure is almost impossible.

It is hardly necessary to speak of the serious nature of this injury and its consequent importance both to patient and physician. When any lesser degree of injury occurs, we may trust to nature, or refuse to recognize it or perform any excuse for an operation and feel confident that no immediate bad results will be noticed by the patient: for it is a peculiarity of incomplete tears that the bad results are usually remote; that is to say they show themselves only after several months or perhaps several years.

When the injury is complete, however, the issue must be squarely met. Neither physician nor patient can be deceived as to the actual condition present. In the first place an injury is present which will not cure itself and which both at once and for all time until cured, will be accompanied by all the deplorable consequences of bowel incontinence. In the second place the physician knows that in order to effect a cure, he must prepare to carry out a careful, well-equipped surgical operation.

On top of this comes the undeniable fact that in a large number of cases, even where a careful operation has been carried out, it proves unsuccessful. Reed states that "union may be said to occur in less than 50% of even favorable cases," and that "the practitioner in justice alike to himself and his patient should, before attempting an immediate repair of these injuries, explain that the majority of such operations are failures." This is truly a sorry confession and to undertake an operation with such a confession on the lips is discouraging and conducive to anything but good and careful work.

As for deliberately postponing the operation until a secondary repair can be made, there is no excuse whatever. I do not see any good reason why the operation should not be sucessful in the great majority of cases, and if we can but get a union of the sphincter, let alone the rest of the perineum, the gain for the patient will be immense.

If the proportion of failures is in fact large, then it becomes our duty so to improve the technic that we may undertake the operation with confidence and with the assurance that the chances are largely in favor of success.

Complete tears of the perineum naturally fall into two distinct groups, the recent and the old. Recent tears are of interest principally to the general practitioner and the obstetrician, while the old more often fall into the hands of the gynecologist and surgeon. So marked is the difference between these two forms, in the conditions surrounding them, in their pathology, prognosis and treatment, that they require separate consideration. I propose to pay particular attention to recent injuries.

Causes. In a country of magnificent distances, like Nevada, where the majority of the profession spread their field of practice over several hundred square miles, it would seem that this accident would be peculiarly liable to happen; for many births must occur before the physician can arrive to take charge of the labor and protect the perineum. But as a matter of fact the proportion is not so great as in the cities where the physique of women is poorer and the dangers of meddlesome midwifery very much greater. When a woman is able to give birth without assistance, it usually bespeaks no complication. The majority of bad tears occur in complicated labors, where interference is necessary and instruments are used. Malpositions requiring versions; hemorrhage and eclampsia necessitating forced rapid delivery are the most frequent causes.

The accident therefore is most likely to occur under the very eyes of the attending physician and there is no excuse for overlooking it.

Prophylaxis. Regarding prevention, my own experience in obstetrics leads to the following conclusions: (1) The lateral position in confinements gives the very best control over the advancing head and enables the accoucheur best to protect the perineum. (2) That the shoulders do more harm than the head in passing over the perineum. In many cases the arms may be delivered immediately after the head by rotating them on the chest. This device relieves the perineum very greatly. (3) When forceps are used the delivery should be as slow and deliberate as circumstances will permit. The majority of instrumental deliveries are entirely too rapid. Ample time must be given in order that the tissues may stretch and adjust themselves while traction is being made.

Characteristics. In a fresh laceration the parts have a very characteristic appearance. The wound is rough and irregular, presenting numerous shreds along the torn edges. The raw surfaces are covered with clotted blood. The surrounding tissues are livid, swollen, edematous showing little tendency to contract. Just here we have clearly indicated the most urgent reason for attempting an immediate repair. Owing to the overstretching and semi-paralyzed condition of the tissues, the parts that belong together remain in contact for some little time before contracting and where they are united at once we stand a better chance of getting accurate union.

The outer portion of the wound, that is to say the portion extending through the skin from vagina to rectum, is usually single and in the median line. When the tear goes off to one side, it is more likely to miss the sphincter and make its way deep down beside the bowel. Within the vagina, the wound is often complicated by branching off in two directions, following along each lateral sulcus.

*Read before the Nevada State Medical Association, May, 1905.

Let us suppose that we are about to treat a complete tear of the perineum that has occurred in a patient living in some out of the way cabin. How shall we go about it? What are the weak points of the usual technic?

Faults in Technic. The first thing to be determined is where shall the operation be performed, on the bed or on a table. The bed is a very bad place on which to perform a surgical operation. The patient cannot be placed in good position, the light is usually bad, the assistants and anesthetizers occupy awkward positions and the part to be operated upon is too low for the physician to work in comfort. With all these objections I suppose more perineums are repaired on the bed than ever reach a table. Yet no home is so poor but that it affords a kitchen table. This may be made an ideal operating table by covering with clean sheets and a Kelly pad. With good light, with the patient in good position, with your instruments within convenient reach, and lastly but not least, with a comfortable seat, it is easy to do good work.

Regarding assistants; every man who practices in the country is accustomed to make use of unskilled persons. In a perineal operation the legs can be held to better advantage by even an unskilled person than by any of the various leg-holders that have been devised.

The next point is the use of irrigation. The favorite solution with most physicians is bichloride, largely I suppose on account of its convenience. But I consider that it is a very bad solution to play over a raw wound. Where it comes in contact with a fresh wound it forms a coagulum on the surface which does not leave it in good condition for immediate union. It is much better to use the principle of asepsis rather than antisepsis and use boiled water or normal salt solution.

Another detail is the free exposure of the wound. This is best done by drawing the edges widely apart by means of vulsella. These instruments should be held by the assistants. The wound cannot be properly united unless its full extent and nature are plainly seen.

Sutures. When the wound has been properly prepared by trimming and washing the suture material must be selected. Shall it be silk, silkworm-gut, silver wire or catgut?

Before considering this point, it must be remembered that the tissues to be sutured are swollen and as healing progresses will shrink considerably. Again owing to the lochial discharges and the proximity to bladder and rectum, the parts are peculiarly liable to infection. These considerations must determine our selection of the material most suitable for sutro.

Silk, I believe to be most unsuitable. It is true that it is easy to procure, easy to handle and easy to sterilize. But in my experience it has proved a failure, and I am sure that any one who uses silk habitually will confess to having many stitch-hole abscesses. No matter how carefully prepared, silk is, from its structure, easily contaminated and harbors infection within its meshes.

Silkworm gut is a hard, impenetrable substance and therefore in itself it cannot be infected. But it is stiff and unyielding and on this acount is unsuitable for a tissue that is destined to shrink. In such cases it will often be found hanging loose in the tissues or even holding the edges apart.

Silver wire gained its early reputation through its use in vaginal work in the hands of Marion Sims. It is a most excellent material and its virtues are too often overlooked. I am sure that much better results could be recorded in work about the perineal region, if it were used more frequently. It has the invaluable quality of being in itself an antiseptic material. As regards stiffness it has the same objections as silkworm gut, but is superior in that if found loose, it may be easily tightened by twisting the ends. As a retention suture it has no equal.

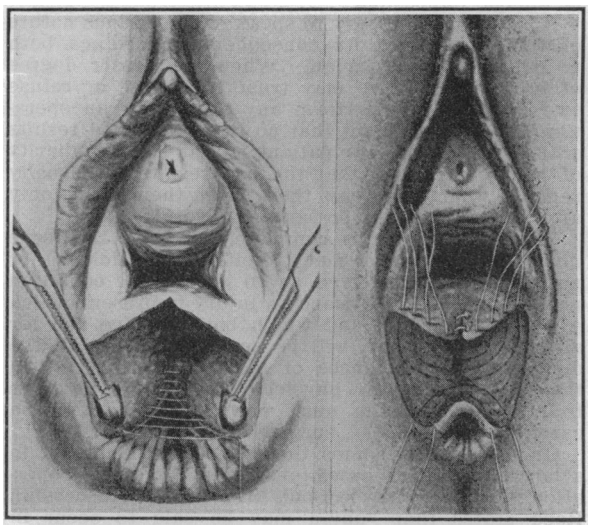
Catgut deserves special attention as a perineal suture. Its chief virtue lies in the fact that it may be buried in the tissues and therefore used as a running or continuous suture by which a wound may be effectually sealed. Its chief disadvantage is that it is difficult to sterilize and keep, but these difficulties have been overcome by the various manufacturers, who supply catgut in small, convenient, sealed packages which may be opened as needed.

On the principle that the suture should be selected to fit the requirements of the wound, I believe that for a fresh tear, catgut and silver wire form the best combination.

Interrupted or Continuous. Now, supposing that the wound has been properly prepared for coaptation, how shall the edges be brought together? We may choose either interrupted or continuous sutures. The majority of operators use the interrupted because it is the simplest and easiest to insert, but I believe that it is responsible for many failures. Interrupted sutures interrupt the circulation. If the tissues are filled with a mass of tied sutures, the blood supply will be seriously interfered with at each point where a suture is tied. The ideal suture should bring the surfaces together without force and without interference with the circulation, for the vitality of the tissues and their power of uniting quickly, depends upon an unrestricted blood supply. The continuous suture answers these requirements better than any other.

Technic. To go on then with the operation, the bowel tear must first be repaired. It is necessary to seal the edges effectually against the invasion of bowel contents. This cannot be done with an interrupted suture. The latter not only leaves avenues of infection between each stitch, but the projection of the stitches into the bowel invites infection by capillary attraction.

In order to seal this part of the wound, it should be brought together by a continuous, fine chromicized, catgut suture, starting at the upper angle and passing firmly through the tissues so as to bring the edges of the mucosa together without penetrating into the bowel.



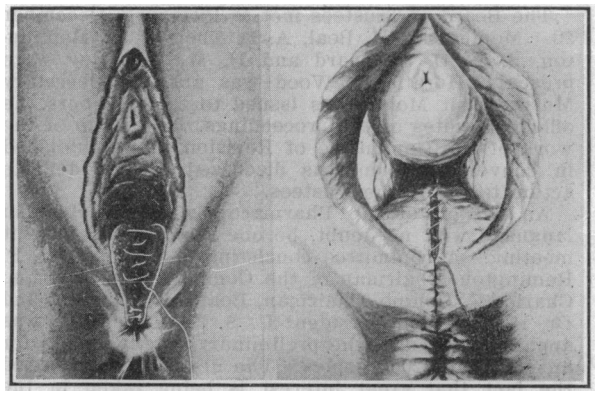
(Fig. I. Bowel closed by continuous suture. Ends of sphincter fished out.)
(Fig. II. Faulty technic. Ends of sphincter still buried.)

As soon as the bowel rent is closed, attention must be directed to the sphincter. The essential point of the whole operation is of course to unite the divided ends of this muscle. In the usual operation the raw surfaces in the vicinity of the divided ends

are simply pressed together without making any attempt to ensure muscle coming in contact with muscle.

I wish to call attention to the necessity of bringing the ends directly together, without the possible intervention of any other tissue, not trusting to a chance union but actually isolating the muscle and uniting it under the guidance of the eye.

Fishing. This may readily be done by fishing for the retracted ends with forceps. The muscle is enclosed within a sheath and each end may be caught and drawn out. When exposed it is easy enough to unite the ends with a couple of interrupted chromicized catgut sutures.



(Fig. III. Ends directly united.)
(Fig. IV. Sphincter reinforced by silver wire. Rest of wound closed by continuous suture.)

To reinforce these sutures, silver wire should be inserted through skin and muscle entering and emerging a little over a quarter of an inch from the median line.

The rest of the wound may be closed in any way that best suits the operator, but I believe better results will be obtained if continuous catgut is used. The precaution should be taken of inserting the sutures rather deeply so that a firm hold on the tissues may be obtained. In the after treatment it is not necessary to catheterize. Each time after urinating the parts should be douched off with liquor cresolis compositus solution. Within 24 hours the bowels should move. Saline cathartics are best in order to procure watery movements. One or two movements must be procured daily for the first two weeks, and it may be necessary to give Rochelle salts twice a day in order to be effective. The diet should be very light. The silver wire suture may be left in 3 weeks.

As for douches, none should be given unless there is some odor to the vaginal discharge. In that case one or two douches of liquor cresolis compositus may be given daily.

MERCURIAL INJECTIONS IN SYPHILIS.*

By HOWARD MORROW M. D., San Francisco.

IT IS generally admitted by clinicians that one large dose of mercury given hypodermatically has an action equal if not superior to pills of mercury given over a period of five or six days. The needle must be passed through the subcutaneous tissue into the muscle—the outer side of the gluteal region being the best location. If the needle and syringe are absolutely clean, and the skin sponged with alcohol, there is no danger of infection and large inflammatory areas are prevented by not giving injections at the same spot except after a lapse of a week or more. Whatever preparation is used, the first injection must be small on account of the possibility of the patient being very susceptible to hydrargyrism. After that the dose must be increased until the lesions begin to fade rapidly or until a reaction from the mercury occurs. The quantity of mercury in each preparation must be kept in mind as well as the reaction from the dose—carelessness in this regard explains why one patient is cured by using such-and-such a salt of mercury, while another derives but little benefit. One object of this paper is to bring out the fact that many preparations act well if properly given, there being little choice between many of the soluble salts.

The soluble preparations are given in water and the insoluble ones in oil—this is a very important point because with injections of oil there is always the possibility of embolism. Several fatal cases have been reported. Klotz reports twelve cases of embolism in his series of over two thousand injections. This is probably the most disagreeable incident in the use of the insoluble salts. Another objection is the accumulation of mercury which may take place after the injection of insoluble—oily preparations and large quantities may suddenly be absorbed into the circulation. Recently at the University of California clinic a patient with stubborn lues exemplified this possibility. He had received about fifty injections of bichloride, nearly one hundred of sozoiodolate and while under treatment he developed a rebellious glossitis. He was then given two calomel injections of one grain each, one week apart, and ten days after the last injections he felt sick and became severely salivated.

The only serious objection to the soluble salts is that they must be given more frequently on account of being rapidly absorbed into the circulation. Still it is seldom that it will be found necessary to give the injections oftener than twice a week, and occasionally once a week will be sufficient. For the past four years at the clinic injections have been used in nearly all severe cases. Several hundred injections of the bichloride, biniodide, sozoiodolate and benzoate have been given as well as many of grey oil and calomel. The latter have only been used in stubborn luetic conditions of the mouth. No disagreeable symptoms from soluble salts have been observed. Before classifying the advantages of the different methods, I'll briefly mention the hobbies of some of the European clinicians relating to mercurial injections:

In England the favorite treatment for many years has been tablets of hydrarg. cum creta. Jonathan Hutchinson and Radcliffe Crocker both use this method more than any other. Mercurial injections are very seldom used. At the clinics in Paris the green iodide of mercury in pill form is still a favorite remedy and is usually given in the form of intermittent medication as advised by Fournier. In the hospitals, syphilitic patients are mainly treated by means of injections, a great variety of preparations being used; but there seems to be a preference for the soluble salts, as being less dangerous, and as effective as the insoluble preparations.

In Italy injections and inunctions are almost exclusively used. The sublimate and calomel are the favorite salts.

In Germany and Austria the most popular way of treating syphilis is by inunctions with mercurial ointment and in many places mercury is only used when symptoms of syphilis are manifest. The injection treatment is also largely employed—a great number of preparations are used, each clinic having some favorite one. The salicylate, the sublimate and the grey oil are most generally used. Internal treatment by pills and mixtures is not looked on with favor.

At St. Petersburg, patients in hospitals are largely treated by means of inunctions and those attending clinics frequently receive injections of the insoluble salicylate.

Advantages of Injections Over Internal Medication. The action is rapid and the exact dose can be esti-

* Read before California Academy of Medicine November 28, 1905